

Conservation, Cost-Saving and other Efficiencies
Montana State University – Office of Facilities Services

1. As the responsible steward of MSU's utilities budgets, the Office of Facilities Services (OFS) has implemented over ***\$3.3 million worth of energy conservation projects*** comprised of heating, ventilating and air-conditioning controls modifications, building envelope improvements, lighting retrofits, and central boiler efficiency improvements over the past two decades.
2. Unique among universities, MSU's Heating Plant annually changes from its standard 24-hour/day winter operation schedule to a 2-shift/day (16 hour per day) summer operation from commencement to the beginning of fall semester. This ***conserves ~\$80-100k+/year*** in utility and labor costs at current energy prices and should pay increasing dividends as energy prices escalate in the future.
3. MSU OFS was a leader in the state in the early 1990's, bidding our own interruptible natural gas contract, ***that resulted in gas costs to MSU of \$1.1 million less than what we would have paid under the regular prevailing gas tariffs paid by other state agencies for the same period.*** We continue to purchase gas in the de-regulated market, securing the best, minimum-cost scenarios available from the prevailing market.
4. In 1991, MSU OFS installed an electric co-generation turbine unit in the Heating Plant, which annually contributes 4%+ (in dollar value) of the campus' electricity consumption. To date, the co-generation unit has produced ***over \$1.3 million in avoided electricity costs*** during its service life.
5. After six years of diligent pursuit, MSU completed negotiations for a 15 year power supply contract and began purchasing about 30% of its electrical power from the federal Western Area Power Administration (WAPA) in January, 2006. MSU anticipates achieving an annual cost avoidance of ~\$200k-\$250k for the WAPA power in comparison to the default rates charged by NorthWestern Energy.
6. MSU OFS annually participates in the self-directed Universal Systems Benefit (USB) program, which allows us to self-direct the USB portion of our electric price tariffs, to execute approved energy conservation measures in our facilities. We have aggressively pursued these projects, ***reclaiming ~\$50k/year in USB rebates.*** The 2005 Legislature extended this opportunity through 2009 (MCA 69-8-402).
7. While MSU's 20-year consumption trends have indicated steady growth in electric usage and demand levels, ***MSU's gross natural gas consumption in recent years has been lower than it was 20 years ago.*** Although this comparison is not weather-normalized, the relative use levels still speak positively about conservation efforts in light of the many new facilities that have been constructed during that period (many of which are costly, high-energy-use, high-ventilation-rate science and laboratory type buildings).
8. When MSU replaced its primary electrical distribution system in the 1990's, we tripled the distribution voltage, which reduced distribution losses and produced commensurate savings.

9. Construction of the MSU Utility Tunnel system allows core utility systems to migrate into the protected tunnel environment as existing systems fail, greatly improving system reliability, expansion flexibility and longevity when compared to the previous direct-buried installations.
10. ***MSU's gross municipal water consumption has also declined*** over the past 20 years, due primarily to much-improved water management practices for irrigation, including the use of untreated, and much less expensive, surface-water sources rather than treated, potable City water.
11. Over the past decade, ***MSU OFS developed the Facilities Condition Inventory*** system for the systematic assessment of deferred maintenance. MSU OFS performs the FCI at all affiliated campuses as well as the Bozeman campus.
12. As budgets were regularly cut in the 1990's, MSU OFS reduced its custodial corps, resulting in reduced general office suite area cleaning services from daily to twice per week; reduced individual office cleaning services from daily to once per week; reduced exterior window washing to once every 2-3 years; discontinued all cleaning services to research labs; and increased the amount of area cleaned per custodian to almost 40ksf (nationally recommended average = ~24ksf/custodian).
13. MSU OFS lengthened all capital equipment replacement cycles, resulting in less capital replacement expenditures per year (which may increase equipment maintenance and the amount of obsolete, less efficient equipment overall).
14. As severely limited resources have allowed, MSU OFS has increased Preventive Maintenance and Scheduled Maintenance activities in an attempt to slow the continued growth of deferred maintenance in our facilities and infrastructure.
15. As major new facilities have been constructed, MSU has eliminated old, functionally obsolete facilities whenever possible (such as Ryon Lab and the old Starch Lab buildings), thereby reducing the net accumulated deferred maintenance liability.